

UNITED NATIONS  
ECONOMIC  
AND  
SOCIAL COUNCIL



LIMITED

ST/ECLA/CONF.7/L.1.38  
29 November 1960

ORIGINAL: ENGLISH

LATIN AMERICAN ELECTRIC POWER SEMINAR

Held under the joint auspices of the Economic Commission for Latin America, the Bureau of Technical Assistance Operations and the Resources and Transport Economics Branch of the United Nations, with the collaboration of the Government of the United Mexican States

Mexico City, 31 July to 12 August 1961

ELECTRICITY TARIFFS AND REGIONAL DEVELOPMENT

by James E. Watson

NOTE: This text is subject to editorial revision.

## SUMMARY

### Electric Tariffs and Regional Development

By

James E. Watson, Director of Power Marketing  
Tennessee Valley Authority  
Chattanooga, Tennessee, U.S.A.

The Tennessee Valley Authority is an agency of the Federal Government of the United States established for the purpose of developing all of the resources of the Tennessee Valley. One of the important tools used in this program of regional development has been electric power.

The TVA generates and transmits electricity and sells it at wholesale to 153 locally owned and operated distribution systems. The power generated by TVA at relatively low-cost hydro plants and by very large and efficient steam plants is sold to the local distributors under power contracts which not only set the wholesale price of the power to the distributor, but also provide an understanding between TVA and the distributor on the retail tariffs and methods of operation which are designed to maximize the effectiveness of electricity on regional development.

This demonstration of the value of electricity as a tool in regional development has been outstanding. An abundant supply of electric energy available at low cost has been a major factor in improving the productivity and the economic condition of the area. At the same time, the operations of TVA and the various power systems which have made this supply of low-cost energy available have had outstanding financial success.

The paper outlines the background of the experiment and the factors involved in the design of the tariffs in order to promote high use and low unit costs. It outlines the effect of this policy of high use and low tariffs on system growth, operating expenses, earnings, plant investment, and financing. Particular attention is given to the importance of management policy in determining the role of electric tariffs with respect to regional development.

# ELECTRIC TARIFFS AND REGIONAL DEVELOPMENT

By

James E. Watson, Director of Power Marketing  
Tennessee Valley Authority  
Chattanooga, Tennessee, U.S.A.

## The TVA Experiment

A little more than a quarter of a century ago the Valley of the Tennessee River, located in the southeastern part of the United States, represented one of the poorest sections of the entire Country. Its economy was based primarily on agriculture. Its land resources were seriously being depleted. Its water resources were virtually undeveloped. Back in the early 1930's the per capita personal income of its residents was less than 40 percent of that of the Nation. In 1933 the Congress of the United States undertook an experiment in regional development to improve the economic status of the Tennessee Valley. It established the Tennessee Valley Authority as a Federal agency with the wide responsibilities for developing the natural resources of the region by helping to achieve effective flood control, river navigation, agricultural and fertilizer development, reforestation, widespread and abundant use of electric power, and industrial development. Each of these various programs has made substantial contributions to the development of the region and each complements the other. Over the years electric power has proved to be one of the major tools in the economic development of the region, and to a large extent, its usefulness as an economic development tool relates directly to electric tariffs.

In order to satisfy the many and large demands made upon electric power as a regional development tool, TVA has developed most of the hydro-electric power resources of the Valley, and more recently has constructed large steam plants to supplement the hydro power supply and to utilize the very extensive coal resources located in and close by the area. Today its electric system produces more power than any other single integrated system in the United States. TVA operates principally as a wholesaler. The relatively low-cost power produced by its system is sold at wholesale to 153 local power distributors who retail the power over an area of approximately 80,000 square miles to nearly one and a half million electric consumers. Two of the local distribution systems are owned and operated by small private companies. The remaining are owned and operated by municipalities, counties, or rural cooperatives. The figures and charts referred to herein include only the 99 municipal and 51 rural cooperative systems which had more than one year's operation under a TVA power supply contract. In selling power at wholesale to these local distribution agencies, TVA and the distributors have agreed that the power supplied by TVA is to be used as a tool in regional development and that the tariffs to be used by the distributors for the sale of power to the ultimate consumers are to be set at levels which will provide for financially sound distribution operations, but which will be as low as possible in order to encourage the maximum use.

The success of the local distributors has been outstanding. Not only have they been financially successful, but working together with TVA they have increased the use of electricity by the homes, farms, and businesses of the area from less than 1-1/2 billion kilowatt-hours per year to more than 30 billion kilowatt-hours per year. Their success in regional development stems in part from a constructive attitude of management toward load development activities, and in part, from the use of promotionally designed tariffs based on the theory that high use brings about low unit costs and that low tariffs help to bring high use.

Up to the time TVA was created, the electric utility industry in the United States generally applied high tariffs and had successfully resisted efforts to have tariffs lowered by contending that the reduced tariffs would be confiscatory by not permitting high enough rates of return to attract new capital. Tariffs were lowered only when regulatory commissions could demonstrate that the utility's return was excessive, and then they were reduced only to the extent necessary to eliminate the excess earnings. The history of utility operations in the United States has proven that to attain really low tariffs and greatly increased use by this approach is indeed a very slow process. In the TVA experiment it was decided to reverse the process previously used. Rather drastic tariff reductions were made at the start of the experiment as an incentive in building customer use to the point of making such tariffs economically justified. On the average, tariffs were reduced in the order of 50 percent from that generally charged throughout the United States. The experiment has produced results far beyond expectations. In a few years electricity proved to be a very powerful tool in the development of the region. Residential average use per customer in the area, for instance, has grown from 600 kilowatt-hours per year to 8,800 kilowatt-hours per year. Thirty-eight of the distributors have average annual residential consumptions in excess of 10,000 kilowatt-hours. New industries have developed in the area to the point that twice as many people are now employed by industry as by agriculture. While the availability of low-cost power is not the sole factor in this industrial development, the fact remains that last year business and industry in the Valley used about 20 billion kilowatt-hours, equal to about 13 times the total power used for all purposes in the same area at the start of the development program. The region has become one of the Nation's principal markets for electric appliances. Sales of electric appliances since the end of World War II have amounted to more than 2-1/2 billion dollars. Electricity is available to everyone in the area, and use of electricity on the farm is now growing at the rate of about 13 percent per year. Great strides have been made in the general development of the region. At the same time the local distributors and the TVA power program have established enviable records from the standpoint of financial feasibility. The earnings are sufficient not only to cover all operating costs, and interest on and retirement of invested funds, but have also supplied a considerable part of the capital required for the growth of the systems.

#### Tariff Design in the Tennessee Valley Area

The broad objectives in the design of the retail tariffs used by the distributors of TVA power are simple and direct. They consist of four main

points: (1) The tariffs should cover all costs of service after a short developmental period. (2) The tariffs should be low so as to promote the widest possible use, both as to area coverage and kilowatt-hour sales per consumer. (3) The tariffs should contain incentives to promote high use. (4) The tariffs should be simple and nondiscriminatory.

Some revisions have been made in the tariffs over the last 25 years, but the basic level and the broad objectives outlined above remain much the same. Today the tariffs are as follows:

#### Residential Tariff B-1

##### Charge per kwh:

First 50 kwh at 3.0 cents  
 Next 150 kwh at 2.0 cents  
 Next 200 kwh at 1.0 cent  
 Next 1,000 kwh at 0.4 cent  
 Additional kwh at 0.75 cent

#### Commercial and Industrial Tariff BG

##### 0-50 kw Demand

##### Demand Charge:

1st 10 kw, No Charge  
 Addt'l kw at \$1.00 per kw

##### Energy Charge per kwh:

First 150 kwh at 3.0 cents  
 Next 350 kwh at 2.0 cents  
 Next 1,250 kwh at 1.0 cent  
 Next 13,250 kwh at 0.8 cent  
 Additional kwh at 0.6 cent

##### 50-5,000 kw Demand

Demand Charge: \$1.00 per kw

##### Energy Charge per kwh:

First 15,000 kwh at 0.8 cent  
 Next 25,000 kwh at 0.6 cent  
 Next 60,000 kwh at 0.4 cent  
 Next 400,000 kwh at 0.3 cent  
 Additional kwh at 0.275 cent

Rate also includes a fuel clause.

##### Over 5,000 kw Demand\*

Demand Charge: \$1.00 per kw

Energy Charge: 0.275 cent per kwh

\*Subject to a rental charge for service at voltages below 44 kv and a fuel clause.

A comparison of the level of the basic residential resale tariff shown above with the average tariff applied within the United States as a whole is illustrated by Chart I.

The operation of the low-tariff high-use policy has proven so successful that many of the power distributors have found that they could operate on tariffs even lower than the basic level outlined above. At the present time 74 of the distributors have adopted one of the two schedules

below the basic level. The lowest tariffs, averaging about 20 percent below the basic level, are applied by 32 systems, and the intermediate tariffs, averaging about 10 percent below the basic level, are applied by 42 systems.

Other than the fact that the tariffs in the TVA area are low and simple, the most interesting characteristic is the strong promotional factor. In the residential tariff this is carried to the point of offering each consumer a large block of energy at the very low price of .4 cent per kilowatt-hour. Chart II illustrates the basic residential tariff. The first 50 kwh is priced at 3 cents, the next 150 kwh at 2 cents, the next 200 kwh at 1 cent. The tariff then drops to .4 cent for 1,000 kwh. For the total of 1,400 kilowatt-hours covered by these tariff blocks, the average tariff is .75 cent per kilowatt-hour and all additional use is priced at that rate. The dashed line on the chart shows the average tariff per kwh for various use levels. The principle behind the .4 cent block is sales promotion. In the design of the tariff it was realized that to use tariffs only about half as high as the level formerly being charged, it was going to be necessary to sell at least twice as many kilowatt-hours per consumer in order for the systems to be economically feasible. The .4 cent block was therefore included as an inducement to influence a large number of the residential consumers to go completely through the 3 cent, 2 cent, and 1 cent blocks of the tariff. These tariff blocks were designed to cover most of the consumer costs and fixed costs of the system. The final block of the tariff at .75 cent is, of course, to assure the distributor that the average tariff will never go below the level. The promotional .4 cent block has been very effective. Customers strive to use enough power to get into the low-cost .4 cent block, yet the electric system never averages less than .75 cent for the energy it sells.

One other basic design principle applied in all the electric tariffs used in the Valley is that the tariffs are applied uniformly throughout a distributor's service area without regard to the location of the customer and the amount of money invested to serve him. Some distributors do vary the level of the minimum monthly bill depending on the investment necessary to serve a customer, but the basic tariff remains the same. The customer with a higher minimum bill is allowed to consume more kwh to cover his minimum bill. The basic reason for this uniform application of a single tariff to each class of customer throughout the service area is the idea behind the TVA program of benefiting the area as much as possible through the widest possible use of electricity. This could not be accomplished if a system tries to measure the economic feasibility of each individual service. The area has to be taken as a whole, and the residential tariffs were designed with the idea that they would cover the average cost of serving an average residential customer in a particular service area. Some customers will produce a substantial margin--some a loss--but on the average, they balance off each other.

Almost every facet of a utility system's operations is affected in some way by the type and level of tariffs applied. The results of the application of the philosophy of low tariffs and high use and the simple schedules outlined above, as experienced by the distributors in the Tennessee Valley, illustrate many interesting relationships with other aspects of an electric system operation.

### Electric Tariffs and System Growth

During the approximately 25 years of the operation of the TVA experiment, the electric utility industry in the United States has grown at a rate of approximately 9 percent per year. TVA's rate of growth has been much faster, and the total use of kilowatt-hours in the region now served by TVA and its distributors has increased from about 1-1/2 billion kilowatt-hours per year to more than 60 billion kilowatt-hours per year. About half of this increase, however, has resulted from the Federal Government's program connected with National defense. Excluding sales to the Federal Government, the increase in use of power by the people of the area has averaged in excess of 12 percent per year, compounded annually. In 1933 the average residential use in the Tennessee Valley was approximately the same as for the Nation--600 kilowatt-hours per customer per year. In 1959 the average use in the United States as a whole had increased to approximately 3,600 kilowatt-hours per residential customer per year, while the average use in the Tennessee Valley for the twelve months ending June 30, 1960, soared to 8,800 kilowatt-hours per year. Sales of power to commerce and industry in the Valley have increased at an average of a little over 12 percent per year compounded annually, as compared with the National growth of 8 percent.

How fast an electric system grows can prove to be enormously important to the economic development of the area it serves. But how fast it grows depends largely on the attitude of the system's management, attitude toward tariff levels, and attitude toward load promotion and customer relations. The attitude of management toward load promotion is tremendously important, as illustrated by the fact that some distribution systems using TVA resale tariffs have average residential use per customer as low as 3,000 kilowatt-hours per year, while others have average residential use per customer as high as 16,000 kilowatt-hours per year. Of course there are other local factors that influence this difference, but the basic reason is the difference in the attitude of the system's management. Yes, the attitude of management on load development is very important, but regardless of this attitude, little can be accomplished without the proper attitude toward the design of tariffs. The experience in the Tennessee Valley shows quite conclusively that tariffs designed to be as low as possible and applied with a forceful sales promotion program, make a very effective tool toward area development.

### Electric Tariffs and Operating Expenses

Electric tariffs affect operating expenses through their effect upon load growth. Total operating costs of the distributors in the Tennessee Valley have been increasing year after year, primarily because of increases in the costs of labor and materials. The rapid rate of growth of sales, resulting from the low-tariff policy, however, has made it possible to absorb these increasing operating expenses and, in fact, actually reduce the expense of delivering a kilowatt-hour to a customer. Chart III illustrates the effect of the low-tariff promotional-use policy on the operating expenses of the TVA power distributors.

In 1950 the average operating expense per customer (all costs of distribution, operation and maintenance, customer accounting, sales promotion, and administration exclusive of the cost of power) was just a little over \$16. Last year it was almost \$26 per customer, more than a 60 percent increase. During this 10-year period, however, when all costs were skyrocketing, the TVA power distributors were able to cut their operating costs for delivering a kilowatt-hour, representing about a 30 percent reduction in operating expenses per kilowatt-hour sold from 1950 to 1960.

It costs more, of course, to sell and deliver power to a high-use customer than it does to a low-use customer, but not as much difference as one might think. Chart IV divides the TVA power distributors into groups according to their respective level of sales per customer, and these groups are portrayed by the vertical bars. In other words, all the distributors with average annual residential sales of about 3,000 kilowatt-hours per year have been placed in one group. The operating expenses per customer for that group have been averaged together and the average is represented by the top of the bar. It can be seen from this chart that there is very little difference in the cost of delivering power to customers in the groups which range from 3,000 kilowatt-hours per customer to 6,500 kilowatt-hours per customer. All of these groups average about \$22 per customer. For customers using in excess of 6,500 kilowatt-hours, the expenses have a definite upward trend, and at the sales level of 12,000 kilowatt-hours per customer the operating expenses of the TVA power distributors average \$28. The solid line on the chart represents operating expenses per kilowatt-hour and, again, there is very marked evidence that the low-tariff, high-use policy has very definitely reduced the cost of delivering a kilowatt-hour to the customer.

#### Electric Tariffs and System Earnings

The experience of the TVA power distributors indicates quite conclusively that a low-tariff, high-use policy will produce a high rate of earnings. The following tabulates the record established by the TVA distributors for the last 10 years:

<u>Fiscal Year</u>	<u>Number of Distributors</u>	<u>Customers Served</u>	<u>Kwh Sales Millions</u>	<u>Average Tariff Per Kwh</u>	<u>Total Revenue Millions</u>	<u>Net Income Millions</u>
1951	144	1,043,000	6,996	1.17¢	\$ 81.8	\$12.7
1952	145	1,091,000	7,742	1.14	89.6	14.6
1953	147	1,139,000	8,662	1.13	99.3	15.4
1954	147	1,181,000	9,632	1.11	109.0	17.2
1955	147	1,217,000	10,811	1.09	119.6	20.4
1956	148	1,257,000	12,323	1.05	131.7	23.1
1957	148	1,289,000	13,462	1.02	140.3	21.4
1958	149	1,324,000	15,413	1.00	156.2	23.9
1959	150	1,369,000	16,417	0.98	164.6	23.7
1960	150	1,402,000	18,576	0.95	180.9	25.1



It will be noted that in this 10-year period the average tariff for power sold by the distributors decreased from 1.17¢ per kilowatt-hour to .95¢ per kilowatt-hour. Yet, the net income earned by these systems during the 10-year period doubled. The average tariff went down for two reasons. During the 10-year period the distributors collectively made a total of 57 different tariff reductions. In addition, because of the block-type tariff used by the distributors, the average rate decreases slightly as the average use increases. During this same period the United States experienced an inflationary period when the Average Hourly Earnings of Production Workers in Gas and Electric Industries increased from \$1.59 to \$2.67, and the Building Cost Index increased from 373 to 560. Had it not been for this inflation the net income would have increased a great deal faster. Stated another way, if the systems had not grown in sales so rapidly they would not have been able to absorb the increases in the cost of doing business. The alternative is to increase tariffs, but when this is done it curtails growth and even higher tariffs are necessary. This point is illustrated in another manner by the upward trend in tariffs applied during this period by the private utilities in the United States.

One of the principal problems in considering the low-tariff, high-use policy is always the question of the immediate loss of revenue resulting from the adoption of lower tariffs. The experience of the TVA power distributors has demonstrated that the resulting loss of revenue is a very temporary loss and that the increased use in power rapidly more than compensates for the immediate loss in revenue. Chart V represents the experience of all of the TVA distributors who since 1947 have changed from the basic tariff to the intermediate level of tariff--a reduction of approximately 10 percent. The chart shows that the level of gross revenues before the tariff cut was recovered after about one year under the lower schedules. The dashed line on the chart also indicates that the average system's gross revenue, less the cost of purchased power, recovered to its previous level in a little over two years.

Another interesting observation available as a result of the TVA low-tariff policy is the record made by the privately owned power companies bordering on the TVA area. Over the years since the establishment of the TVA, these private power companies have reduced their resale tariffs substantially below those charged by the average utility company in the United States. The low tariffs offered by these companies have resulted in increasing the sale of power, which has reflected in a very substantial growth in the companies' common stock earnings. Chart VI shows that from 1937, the earliest year in which Federal Power Commission data were available, to 1957, earnings available to the common stockholders in the larger privately owned power companies in the United States increased by 3-1/4 times, while the similar earnings for companies bordering on the TVA area multiplied 8 times.

Each of the distributors of TVA keeps its financial records in accordance with the uniform system of accounts prescribed by the Federal Power Commission. Each reports its operations in detail to the TVA. A report is published each year showing the financial and operating results of all systems. These published reports are available for all to examine. They clearly demonstrate the record of financial success that the

low-tariff high-use policy has produced for the distributors of TVA power. The rural cooperatives in the TVA area are among the most successful in the United States. The financial position of the municipal electric systems distributing TVA power is outstanding by any test.

### Electric Tariffs and Plant Investment

Normally one does not think of plant investment in terms of electric tariffs. There can be no doubt, however, that the level of the tariff has a great deal to do with how fast a utility grows and that the rate of growth is the principal factor affecting plant investment. Chart VII indicates how increasing sales per customer and increases in labor and material costs have resulted in an increase in plant investment required to serve a customer from approximately \$260 in 1950 to \$440 in 1960. During this same period, however, because of the low-tariff high-use policy, the TVA power distributors have actually been able to reduce the investment required to deliver a kilowatt-hour to the consumer from about 4.5 cents per annual kilowatt-hour sold to about 3.3 cents per annual kilowatt-hour sold. This, of course, results from several factors; the first being the fact that as sales per consumer increase, it is possible to use larger, more efficient equipment, and the incremental cost of delivering a kilowatt of additional sales over those required for the lower level is proportionately small. The second is that many of the overheads, such as customer billing and general administration costs, do not increase as use per customer increases. A third factor is that the faster the electric load grows the higher will be the proportion of new, modern, and more efficient plant in the system.

### Electric Tariffs and Financing

Practically all of the properties of the rural cooperatives in the TVA area have been constructed with funds borrowed from the Rural Electrification Administration, a lending agency of the United States Federal Government. Most of the loans carry a 2 percent interest rate and a retirement schedule extending over 35 years. This financing vehicle has been a great aid in keeping retail electric tariffs at a low level. The same advantage, however, was available to all rural cooperatives in the United States, and it is clearly evident that the availability of low-cost financing is important to electric system growth; however, it does not out-weigh the importance of management's attitude toward a low-tariff high-use policy.

The situation with respect to the municipally owned electric systems has been quite different. Most of these distribution systems were acquired from private owners. In practically all cases the purchase prices were in excess of the book value of the properties. Federal loans were not available and most of the municipal purchasers had no equity capital to

invest in the systems. The municipal acquisitions of electric systems, therefore, had to be almost completely financed by the issuance of electric revenue bonds. In most cases the bonds were serial bonds extending over a period of 20 years.

It was necessary, of course, to design electric tariffs high enough to assure the payment of the interest and amortization of all of the bonds. The big question was whether the tariffs should be high enough to produce enough additional capital from the present system operations to pay for all or a major portion of the new construction made necessary by load growth. In the TVA area there was a strong feeling among the municipalities that they should not borrow additional capital and that they should pay off the original debt as fast as possible. This approach soon proved to be impractical. To make the electric consumers of one period provide all the capital necessary to serve new loads extending over a period of the next 20 to 25 years, placed such a heavy strain on the existing consumers that they were unable to develop properly. True, some of the older systems have paid off all of their debt and have not had to borrow additional capital. In practically every case, however, this has been a deterrent to regional development and most of these systems now have average sales per consumer substantially below the average for all the distributors in the Tennessee Valley. Those who have developed their sales per consumer and still paid off their debt are largely small municipal systems who either did not have an opportunity to develop electric service in the rural areas surrounding the municipality, or who refused to accept the responsibility for such development.

It is quite clear from the 25-year operating record of the distributors of TVA power that to fix tariffs at high enough levels to generate all new capital needed for expansion, or to curtail expansion to fit the amount of new capital that could be generated through reasonable tariffs, results in a much poorer job of regional development than can be done if tariffs are set at levels where the best job can be done in marketing the power.

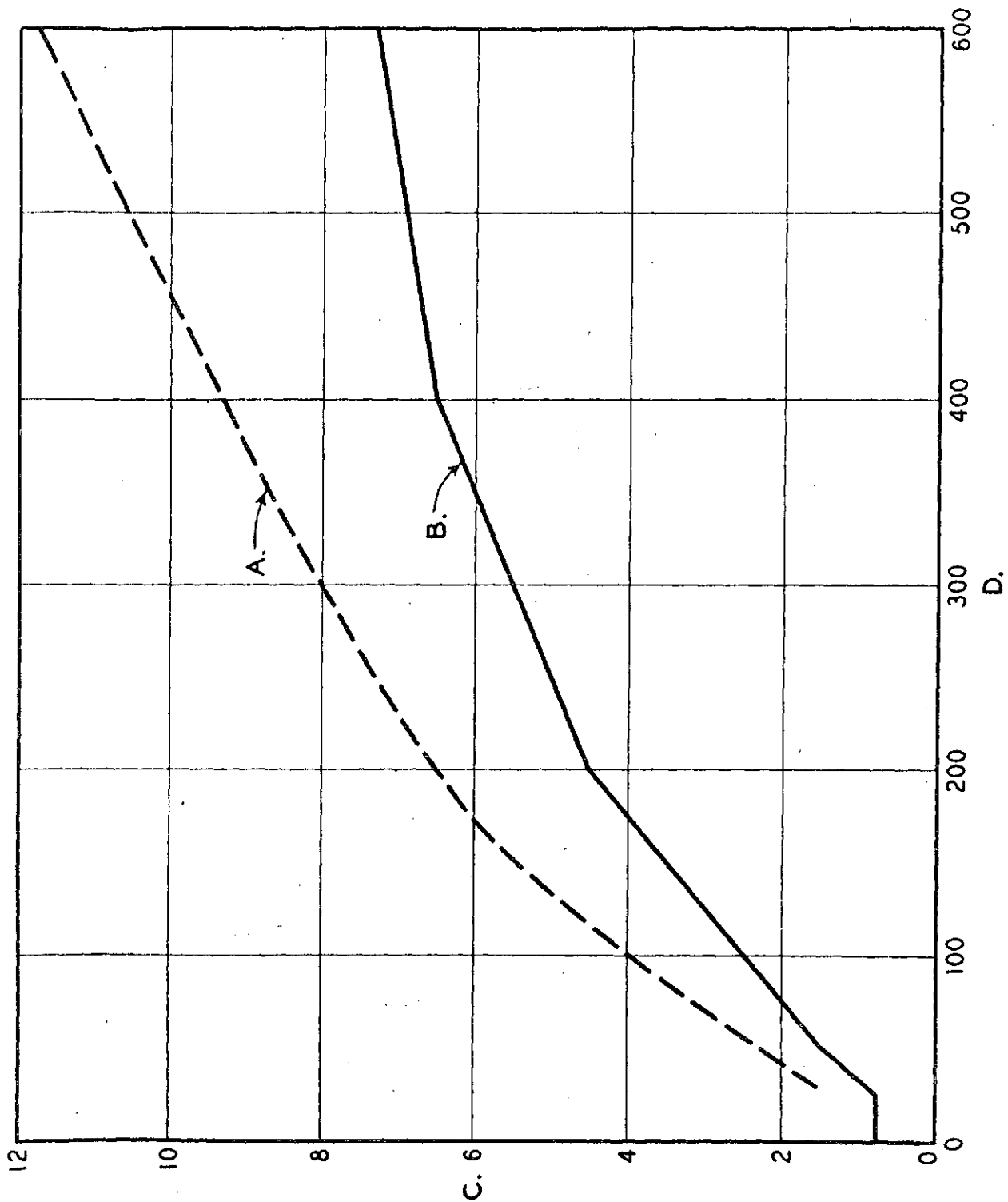
There still remains among some of the municipal distributors in the Valley a resistance toward lowering retail tariffs at times when it is necessary to borrow new capital for plant additions, and some distributors resist the lowering of tariffs until their systems become debt free. This attitude has in the past and still is standing in the road of the maximum regional development. The effect of such an approach can be dramatically presented if applied to the TVA generation and transmission system. TVA's revenues last year, exclusive of sales to Federal agencies, amounted to approximately \$130 million. Annual growth to supply the loads of its distributor and industrial customers requires approximately \$150 million. Earnings and depreciation charges on the entire present system will supply a little better than one-third of this new capital. If TVA tried to collect the additional funds required from its present non-Federal customers, it would require a tariff increase of about 75 percent. The increase in tariffs would be approximately four times as large as the net income of all the distributors last year. The imposition of such a tariff increase would undoubtedly slow down the use of electric power and greatly reduce its value in the resource development programs in the Valley.

### Electric Tariffs and System Management

The experience in the Tennessee Valley has proved conclusively that there is a definite and strong relationship between the level of the tariff and the growth in use of electricity. There are also very strong evidences, however, that the adoption of a low-tariff policy in itself will not produce the maximum contribution that electricity can make toward regional development. It is necessary to couple the low-tariff policy with a strong sales or electrical development program. Experience has indicated that the key to the success of using electric power for regional development is in the attitude of the system management. Little will be accomplished unless management is determined to make a low-tariff high-use policy work.

- I. Residential Bills for Electric Service in the TVA  
Area Compared with Average Bills for U. S. Cities.
  - A. United States Average
  - B. TVA Tariff B-1
  - C. Monthly Bill in Dollars
  - D. Monthly Use in Kilowatt-Hours

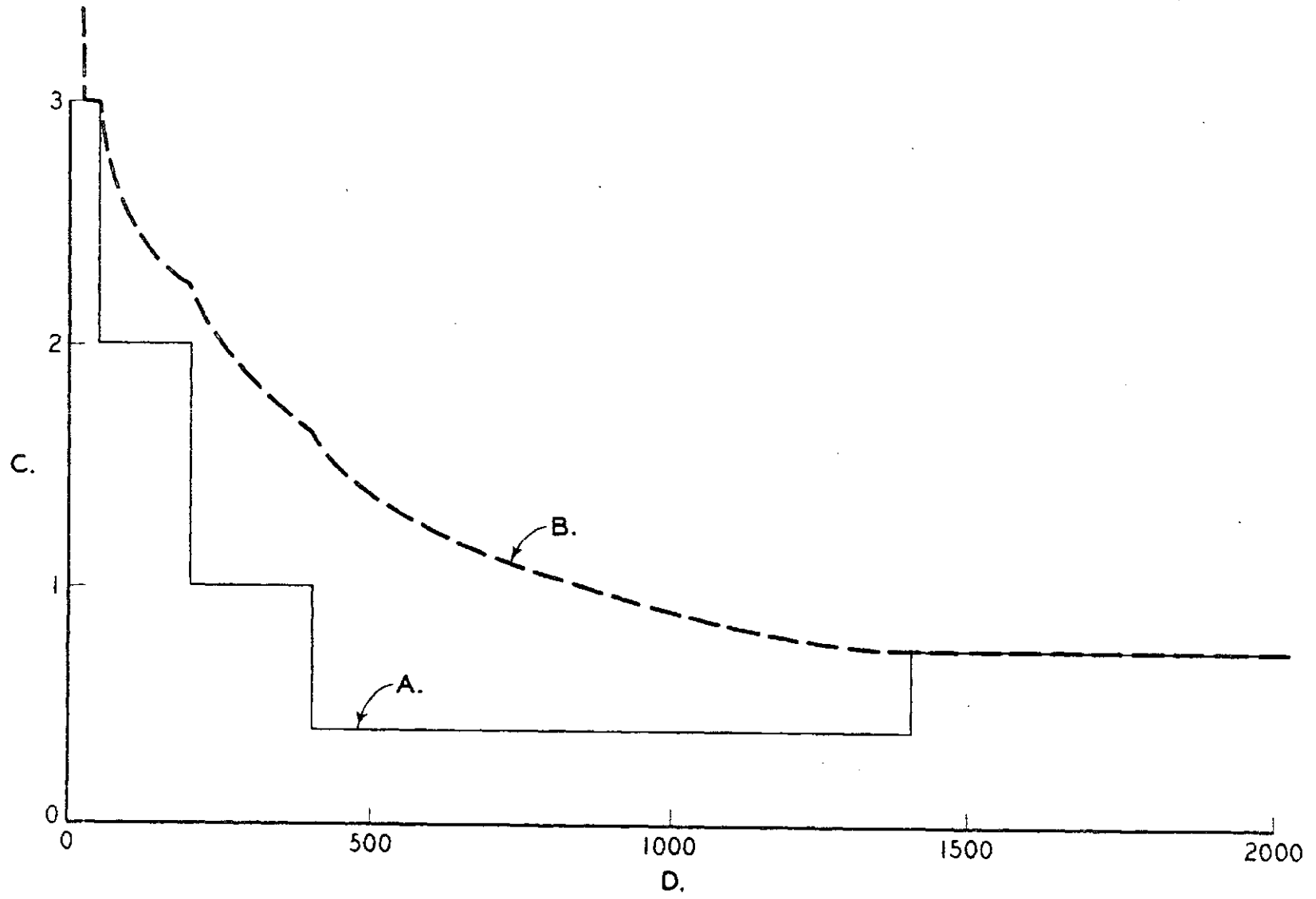
I



II. Cost of Electricity - Basic TVA Residential Tariff.

- A. Block Tariff
- B. Average Tariff
- C. Cents Per Kilowatt-Hour
- D. Kilowatt-Hours Per Month

II





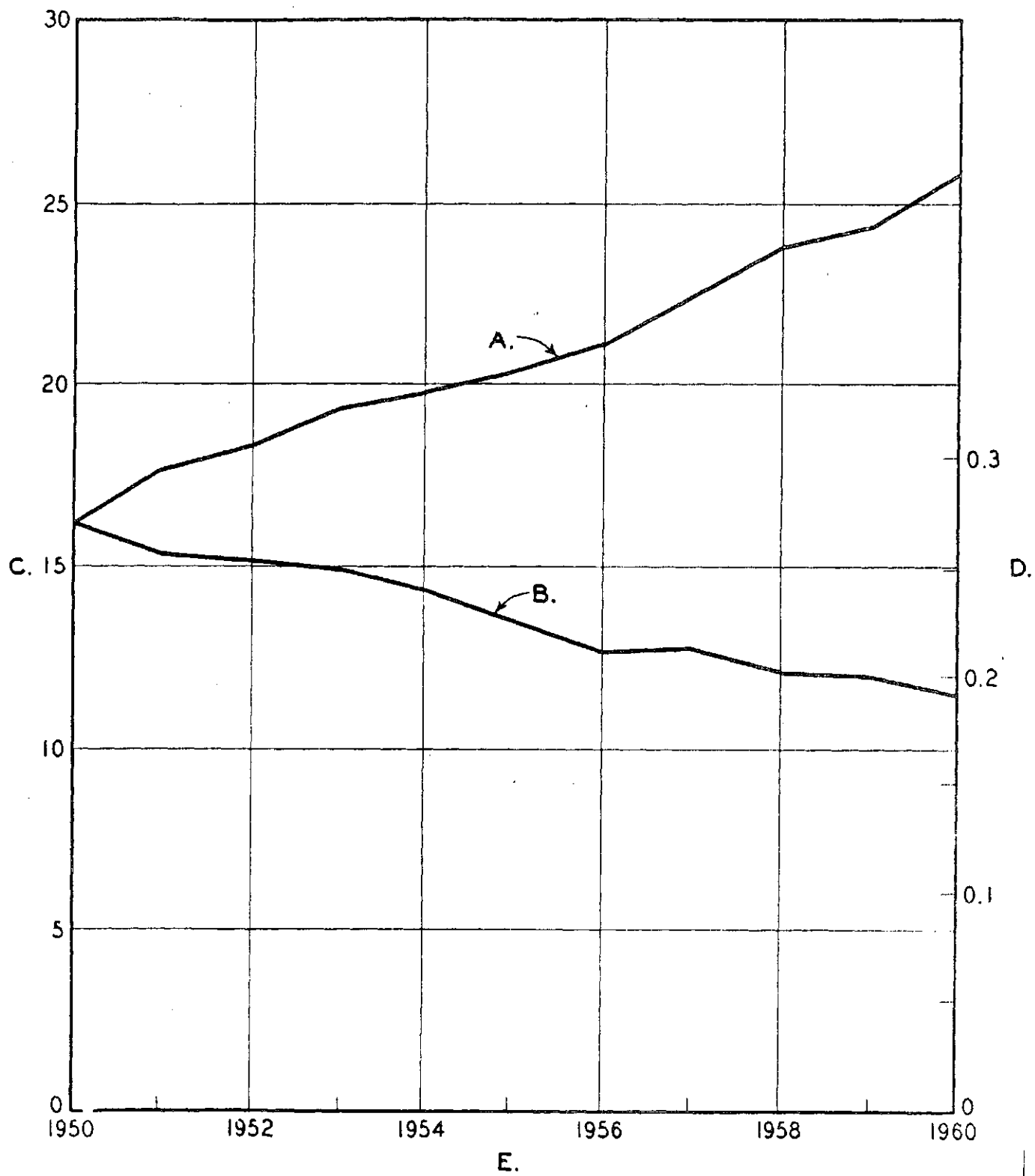
III. Trends of Power Distributors' Operating Expenses\*

on a Per Customer and Per Kilowatt-Hour Basis.

- A. Average Annual Operating Expense in Dollars Per Customer
- B. Average Annual Operating Expense in Cents Per Kilowatt-Hour Sold
- C. Dollars
- D. Cents
- E. Fiscal Year Ending June 30

\*Includes costs of distribution operation and maintenance, customer accounting, sales promotion, and administration.

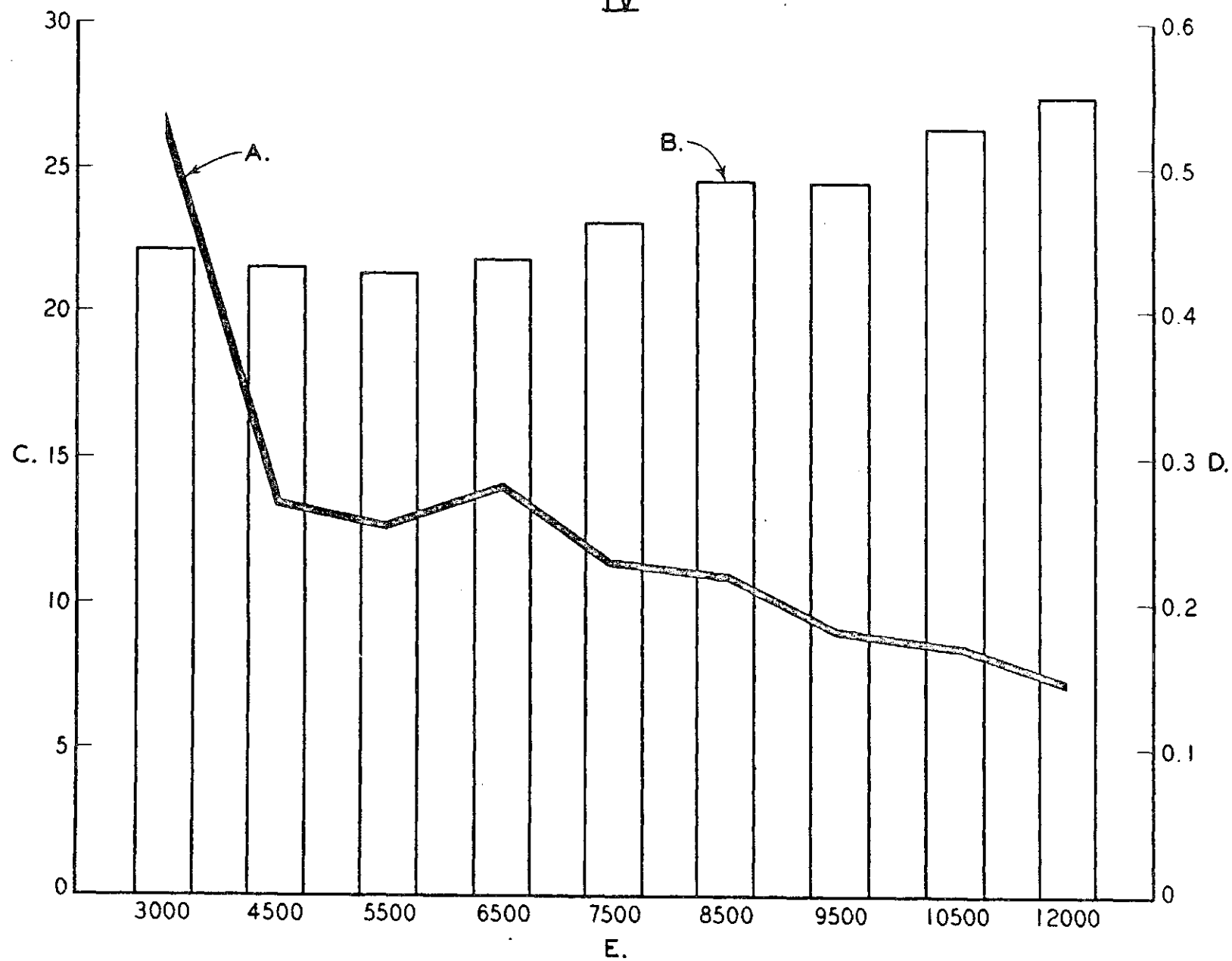
### III



- IV. Average Distributor's Operating Expense\* - Distributors  
Grouped by Residential Sales Levels.
- A. Annual Operating Expense in Cents Per Kwh Sold
  - B. Annual Operating Expense in Dollars Per Customer
  - C. Dollars
  - D. Cents
  - E. Average Annual Kwh Sales Per Residential Customer

\*Includes costs of distribution operation and maintenance,  
customer accounting, sales promotion, and administration.

# IV

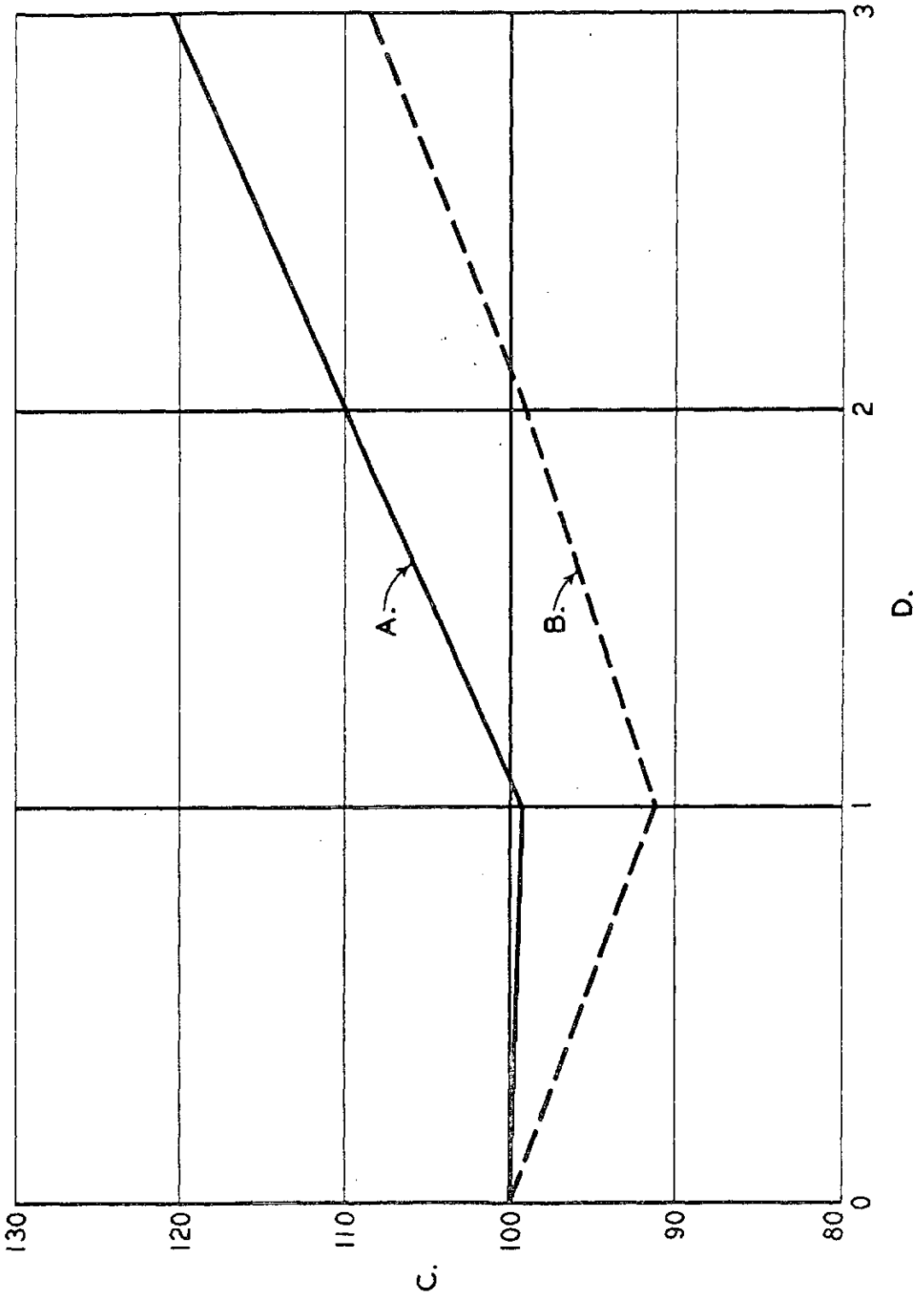


V. Average Rate of Revenue Recovery After Tariff

Reduction from Basic Level.

- A. Annual Gross Revenue
- B. Annual Gross Revenue Less the Cost of  
Purchased Power
- C. Index: Distributor's Last Year of Operation  
Under Basic Tariff = 100
- D. Successive Years of Operation After Adoption  
of the Lower Tariff

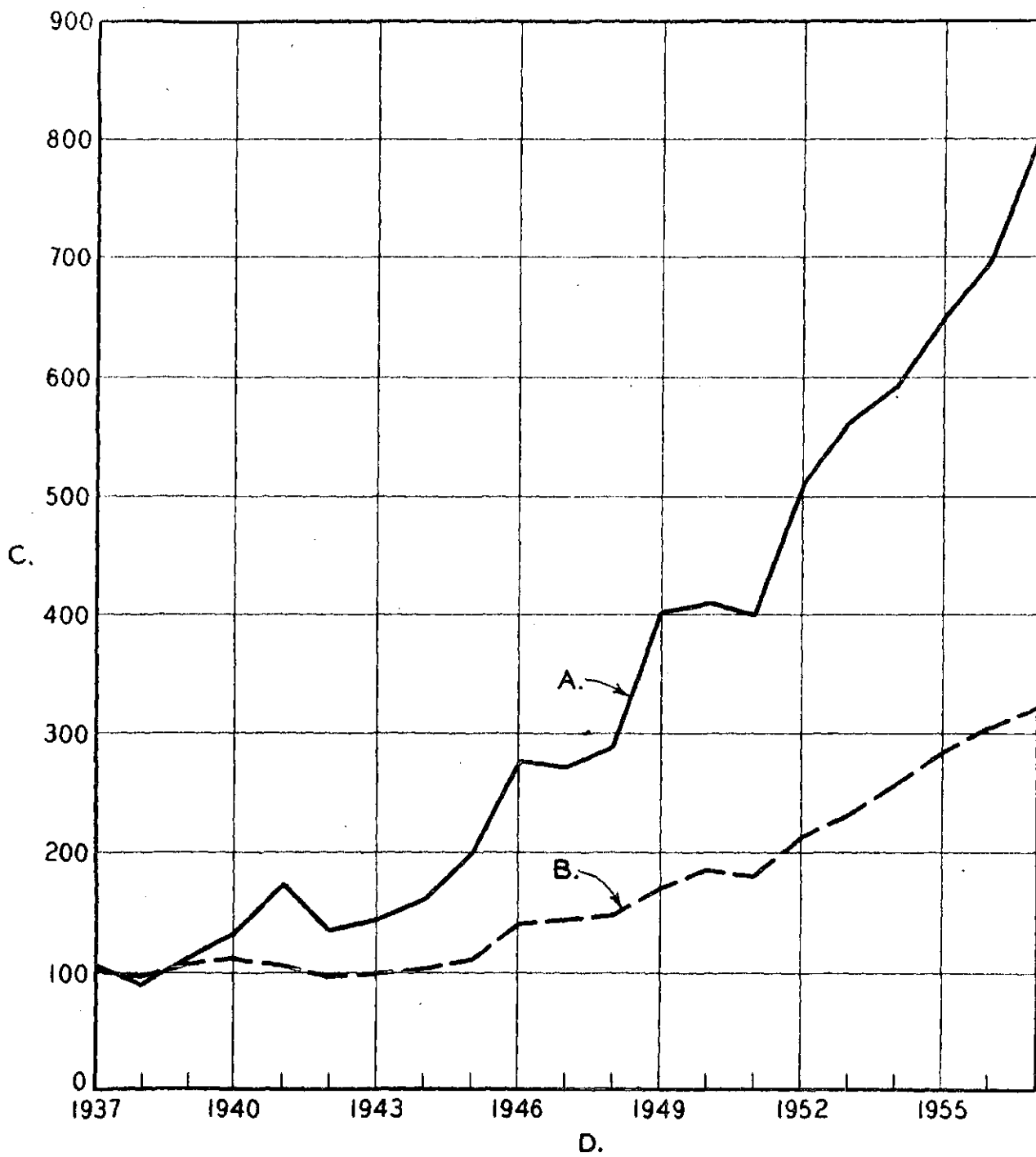
V



VI. Trends of Common Stock Earnings for Privately  
Owned Electric Utilities.

- A. Utilities Bordering TVA Area
- B. All Class A and B Utilities in United States
- C. Index: 1937-39 = 100
- D. Year

# VI





VII. Trends in Gross Plant Investment of TVA

Power Distributors.

A. Plant Investment in Cents Per Annual

Kilowatt-Hour Sold

B. Plant Investment in Dollars Per Customer

C. Dollars

D. Cents

E. Fiscal Year Ending June 30

# VII

